What is claimed is:

1. A method of forming compressed dosage forms, comprising:

a) placing a supply of powder in flow communication with a die, said die comprising a die cavity therein in flow communication with a filter;

b) applying suction to said die cavity so as to cause powder to flow into said die cavity, said suction being applied to said die cavity through said filter;

c) isolating said filter from said powder in said die cavity; and

d) compressing said powder in said die cavity so as to form a compressed dosage form while said filter is isolated therefrom.

2. The method according to claim 1, wherein the filter is a screen having a mesh size larger than the average particle size of the powder.

3. The method according to claim 1, wherein said filter communicates with said die cavity through a port in said die cavity, and wherein said isolating step (c) comprises moving a first punch through said die cavity to cover said port, and wherein said compressing step (d) comprises moving a second punch through said die cavity toward said first punch.

4. The method according to claim 1, wherein a portion of said powder flowing through said cavity is trapped in said filter, said method further comprising the steps of:

(e) purging said trapped powder from said filter after compression step (d); and

(f) directing said purged powder back to said die cavity, whereby said trapped powder is recycled.

5. The method according to claim 4, wherein said directing step (f) comprises (i) directing said purged powder to said powder supply, and (ii) directing said purged powder from said powder supply to said die cavity.

6. The method according to claim 4, wherein said directing step (f) comprises directing said purged powder directly back to said die cavity.

7. The method according to claim 1, wherein said powder has a minimum orifice diameter of flowability greater than about 30 mm as measured by the Flodex test.

8. The method according to claim 7, wherein the relative standard deviation in weight of said compressed dosage forms is less than about 2%.

9. The method according to claim 7, wherein the relative standard deviation in weight of said compressed dosage forms is less than about 1%.

10. The method according to claim 1, wherein said powder comprises at least 85 percent by weight of medicant and has an average particle size of about 50 to about 300 microns.

11. The method according to claim 10, wherein the relative standard deviation in weight of said compressed dosage forms is less than about 1%.

12. The method according to claim 1, wherein said powder is made by dry blending.

13. An apparatus for forming compressed dosage forms, comprising:

a) a suction source;

b) a die cavity having (i) a first port for placing said die cavity in flow communication with said suction source, whereby said suction source applies suction to said die cavity, and (ii) a second port for placing said die cavity in flow communication with a supply of powder, whereby said suction source assists said powder in flowing into said die cavity;

(c) a filter disposed between said suction source and said second port, whereby suction is applied to said die cavity through said filter; and

(d) a punch for compressing said powder in said die cavity so as to form said compressed dosage forms.

14. The apparatus according to claim 13, wherein said punch is mounted for motion between first and second positions, said first position disposed below said first and second ports, and said second position disposed between said first and second ports, whereby said punch isolates said first port from said die cavity when in said second position.

15. The apparatus according to claim 13, wherein a portion of said powder that flows through said cavity is trapped in said filter, said apparatus further comprising:

e) a source of pressurized fluid;

f) a conduit for placing said pressurized fluid in flow communication with said filter so as to purge said trapped powder from said filter.

16. The apparatus according to claim 15, further comprising means for recovering powder trapped by said filter and means for recycling said recovered powder back to said die cavity.

17. The apparatus of claim 13, which is capable of compressing said powder with a force of at least 20 kN.

18. The apparatus of claim 13, wherein said filter is disposed within said die cavity.

19. The apparatus of claim 13, wherein said filter is disposed proximal to said die cavity.

20. The apparatus according to claim 13, wherein said die table further comprises a plurality of openings on its outer periphery, a plurality of channels connecting said openings with said die cavities, and a shoe block contacting a portion of the outer periphery of said die table and aligned with said openings, such that said shoe block covers said openings upon rotation of said die table past said shoe block.

21. An apparatus for forming compressed dosage forms from a powder, comprising

a) a die table having a plurality of die cavities therein, said die cavities being arranged in multiple, concentric rows around the perimeter of said die table;
b) punches aligned with and insertable into said die cavities for compressing said powder into compressed dosage forms in each of said die cavities; and
c) rollers aligned with each of said concentric rows of die cavities for pressing said punches into said die cavities, each roller being sized such that the dwell time under compression of all of said punches is equal.

22. The apparatus according to claim 21, wherein said rollers are mounted on at least one compression frame capable of deflecting under the force of compression, such that upon deflection of said compression frame, said rollers are radially displaced in a direction parallel to their original position.

23. The apparatus according to claim 22, wherein said frame has a C-shape.

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24. The apparatus of claim 22, wherein said compression frame comprises a throat and two arms, wherein said arms form an oblique angle with respect to the axial axis of said rollers.

25. The apparatus of claim 22, wherein said compression frame is capable of pivoting about an axis to move away from the compression module.

26. The apparatus according to claim 22, wherein the compression frame is capable of withstanding a force of up to about 200 kN.

27. A rotary compression module for forming compressed dosage forms from a powder, comprising

a) a single fill zone;

b) a single compression zone;

c) a single ejection zone;

d) a circular die table having a plurality of die cavities therein; and

e) punches aligned with and insertable into said die cavities for compressing said powder into compressed dosage forms in each of said die cavities;

wherein the number of die cavities in said module is greater than the maximum number of die cavities that can be arranged in a single circle around the circumference of a similar die table having the same diameter as the circular die table, and wherein the dwell time under compression of all of said punches is equal.

28. Compressed dosage forms made from a powder having a minimum orifice diameter of flowablility greater than about 10 mm as measured by the Flowdex test, the relative standard deviation in weight of said compressed dosage forms being less than about 2%, and made using a linear velocity at the die of at least about 230 cm/sec.

29. Compressed dosage forms made from a powder having a minimum orifice diameter of flowablility greater than about 15 mm as measured by the Flowdex test, the relative standard deviation in weight of said compressed dosage forms being less than about 2%, and made using a linear velocity at the die of at least about 230 cm/sec.

30. Compressed dosage forms made from a powder having a minimum orifice diameter of flowablility greater than about 25 mm as measured by the Flowdex test, the relative standard deviation in weight of said compressed dosage forms

being less than about 2%, and made using a linear at the die velocity of at least about 230 cm/sec.

31. Compressed dosage forms made from a powder having a minimum orifice diameter of flowablility greater than about 10 mm as measured by the Flowdex test, the relative standard deviation in weight of said compressed dosage forms being less than about 1%, and made using a linear velocity at the die of at least about 230 cm/sec.

32. Compressed dosage forms made from a powder having a minimum orifice diameter of flowablility greater than about 10 mm as measured by the Flowdex test, the relative standard deviation in weight of said compressed dosage forms being less than about 2%, and made using a linear velocity at the die of at least about 115 cm/sec.

33. Compressed dosage forms made from a powder having an average particle size of about 50 to about 150 microns and containing at least about 85 percent by weight of a medicant, the relative standard deviation in weight of said compressed dosage forms being less than about 1%.

34. Compressed dosage forms containing at least about 85 percent by weight of a medicant and being substantially free of water soluble polymeric binders, the relative standard deviation in weight of said compressed dosage forms being less than about 2%.

35. Compressed dosage forms containing at least about 85 percent by weight of a medicant and being substantially free of water soluble polymeric binders, the relative standard deviation in weight of said compressed dosage forms being less than about 1%.

36. Compressed dosage forms containing at least about 85 percent by weight of a medicant selected from the group consisting of acetaminophen, ibuprofen, flurbiprofen, ketoprofen, naproxen, diclofenac, aspirin, pseudoephedrine, phenylpropanolamine, chlorpheniramine maleate, dextromethorphan, diphenhydramine, famotidine, loperamide, ranitidine, cimetidine, astemizole, terfenadine, fexofenadine, loratadine, cetirizine, antacids, mixtures thereof and pharmaceutically acceptable salts thereof, and being substantially free of water

soluble polymeric binders, the relative standard deviation in weight of said compressed dosage forms being less than about 2%.

37. Compressed dosage forms containing at least about 85 percent by weight of a medicant and being substantially free of hydrated polymers, the relative standard deviation in weight of said compressed dosage forms being less than about 2%.

38. Compressed dosage forms containing at least about 85 percent by weight of a medicant and being substantially free of hydrated polymers, the relative standard deviation in weight of said compressed dosage forms being less than about 1%.

39. Compressed dosage forms containing at least about 85 percent by weight of a medicant selected from the group consisting of acetaminophen, ibuprofen, flurbiprofen, ketoprofen, naproxen, diclofenac, aspirin, pseudoephedrine, phenylpropanolamine, chlorpheniramine maleate, dextromethorphan, diphenhydramine, famotidine, loperamide, ranitidine, cimetidine, astemizole, terfenadine, fexofenadine, loratadine, cetirizine, antacids, mixtures thereof and pharmaceutically acceptable salts thereof,and being substantially free of hydrated polymers, the relative standard deviation in weight of said compressed dosage forms being less than about 2%.

Patent Application Publication